THE ADVOCATE OF SCIENCE.

l. I.] KNOWLEDGE IS POWER—HAPPINESS—VIRTUE. [Nos. 31 & 32.

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For the Advocate of Science.

GEOLOGY, No. 18.

e present number I will make a few remarks on the subject of val-

rent theories of the formation of vallies.—The mode in which vallies rme' has been a subject of dissension between the advocates of the , and those of the Neptunian theories. By Werner, vallies were d to have been the result of the original method of construction of h's surface, and the subsidence or sinking down of the strata in par- situations. On the other hand, the theory of Hutton ascribes them gradual and long continued action of the rivers or water courses glide through them.

r the Wernerian nor the Huttonian theory satisfactory.—In neither of rival theories do we meet with a satisfactory explanation of the enon referred to. That vallies generally occur along river courses, rarely in other situations, is a fact which militates against the sup- that they were formed by original subsidence; and the total in- ency of the largest rivers to effect so vast an object, prohibits the n of the other view.

showing that rivers have little effect.—The rivers that take their rise lps, and glide through the defiles in those mountains, admit at the day of the precise description given of them 2000 years ago, by the and the historian Cæsar, whose victorious armies penetrated the in- Europe through the narrow passes of the lofty hills of Switzerland. any perceptible extent have the mountain torrents deepened or their rocky bed since that remote period. History informs us that lexander the Great arrived with his fleet at the junction of the Hy- and Acesinus, two rivers of India, the stream formed by them, by steep banks, threw his whole forces into dismay, and was fatal of his largest vessels. More than 2000 years afterwards, Timour r found the same rapid and troubled current opposing his progress me spot. These and other instances of the same character tend to t rivers have undergone little change, and have produced little ef- heir beds for a long series of years; which must have been other- they been capable of scooping out by their gradual operation the e vallies which exist in their course.

n agency supposed.—Nothing short of the force of great floods ve produced the effect under consideration. The deluge of Noah e been the principal agent in the excavation of vallies. An occur- that nature could not but accomplish immense changes on the sur- r planet, among which we may reasonably include the vast troughs s that abound in the vicinage of mountains, and along the courses s of water, The marks of sudden violence which appear in such strengthen this view.

allies were once the beds of lakes.—Another cause has evidently given casional valleys. In the course of some rivers we may observe of ancient lakes, the waters of which have suddenly overcome rs that confined them, leaving the bed of the lake a fertile plain. nstration of this view is given in Jefferson's "Notes on Virginia," the writer describes the passage of the Potomac through the Blue one of the most stupendous scenes in nature. "You see," says very high point of land, the Shenandoah coming up on your right, g ranged along the foot of the mountains a hundred miles to find On the left approaches the Potomac, in quest of a passage also. ment of their juncture, they rush together against the mountain, nder, and pass off to the sea. The first glance of this scene hur- ases into the opinion that this earth has been erected in process at the mountains were formed first, and the rivers began to flow afterwards; that in this place particularly they have been dammed up by the Blue Ridge of mountains, and have formed an ocean which fills the whole valley. Thus continuing to rise, they have at length broken over this spot, and have torn down the mountain from its summit to its base. The piles of rock on each hand, but more particularly on the Shenandoah, exhibit the evident marks of this disruption and avulsion from their beds by the most powerful agents of nature, and corroborate the impression which such monuments of war between the rivers and mountains (that must have shaken the earth itself to its centre) had created. The broken and rugged faces of the mountains on each side of the river—the tremendous rocks which are left with one end fixed to the precipice, and the other jutting out and seemingly ready to fall from want of support—the bed of the river several miles below obstructed and filled with ooze and stones carried from this mound—in short, every thing on which you cast your eye evidently demonstrates a disruption and breach in the mountains, and that before this happened, what is now a fruitful vale was formerly a great lake, which might possibly have here formed a mighty cascade, or had an outlet to the ocean by the Susquehannah, where the Blue Ridge seems to terminate."

The wind gap on the Delaware.—The same writer describes a scene of a similar character on the Delaware river. The path which that river now pursues through the Kittaninny mountain, does not appear to be its original channel. Several miles westward of it is an opening in the mountain, called the wind gap, one hundred feet higher than the present bed of the river. The wind gap is about a mile wide, and the stones in it are such as seem to have been washed for ages by waters running over them. It appears probable that there was at some remote time a lake behind the mountain, the waters of which owing to some convulsion of nature, opened a new way through their rocky barrier, and carried away the opposing mounds of earth, deluging the country below with the immense collection of waters to which this new passage gave vent. The effects of such a deluge are very evident for a great distance in the country below.

The great American lakes destined to form vallies.—When treating of the causes now in action, which have a tendency to change the character of the earth's surface, I mentioned the attrition of the torrents of Niagara on their bed, as likely to drain in the end, the upper lake. That stupendous cataract is now sensibly approaching Lake Erie. The ultimate consequence will be a drainageof the lake, whose bed will be a vast and fertile valley, containing a small lake in the centre, and watered by a majestic river.

The subject of *mineral veins* has also been a subject of difference between the theories of Werner and Hutton. But I will defer it till the next number.

S.

For the Advocate of Science.

AN INTRODUCTORY LECTURE ON CHEMISTRY.

THE science of chemistry has a more general application to the useful arts, and a more intimate relation to the interests of mankind, than is commonly supposed by those persons who have not inquired into its merits and pretensions. Before we enter on the practical investigation of the subject, it is proper that I should present to you an outline of its history, and of the objects to which it directs our attention.

Like almost every other department of intellectual pursuit, chemical science in its infancy is without a historian. Its origin, however, may be referred with certainty to remotest antiquity. In the antediluvian age of the world, Tubal Cain is represented by Moses to have been a skilful artificer in brass and iron. The art of sepa-

rating metals from their ores, which properly belongs to chemical science, existed, therefore, long before the deluge.

Nearly 2000 years anterior to the Christian era, according to some ancient writers, lived Hermes, an Egyptian philosopher, whom they regard as the founder of the science. He is supposed to have been the same as Mizraim, the grandson of Noah. A second illustrious Egyptian of the same name is said to have flourished a thousand years subsequently, and to have restored the sciences after they had fallen into oblivion. But the existence of such a character as Hermes is doubted by several writers, who regard the account of him as allegorical.

Be that as it may, the ancient Egyptians were no doubt exceedingly skilful in metallurgy, or the art of working in metals. The Israelites also, judging from the writings of their eminent historian and lawgiver, cultivated this art, and brought it to a degree of perfection equal at least to the artists of modern times.

So far as we have examined its history, chemistry appears to have been entirely practical, and limited to the art of working in metals. Indeed, the term metallurgy is a more appropriate appellation than chemistry to the science, or rather art, as it then existed. The occupations of the chemist were those of the smith and the founder of the present day, and his labors were directed to practical and positive results.

But we have now to observe a complete revolution in the science, and barren speculation substituted for effective mechanical labor. The philosopher's stone, which was to transmute all metals into gold, became the sole object of chemical investigation, and alchemy, thus engrafted into chemistry, soon grew so as to absorb all other scientific pursuits.

Egypt, the cradle of almost every art and science, appears to have given origin to alchemy. From that country it was introduced into Greece and Arabia. So early as the fourth and fifth centuries some of the Greek and Roman writers refer to this art as one of general notoriety. But the earliest alchemist whose name has reached posterity, is Geber, an Arabian prince, who flourished in the seventh century. Arabia, about this period, became the paradise of those visionary gold makers, and at the same time, and for successive ages, produced multitudes of alchemists and physicians, some of whom introduced into medical practice several valuable remedies.*

From the tenth to the thirteenth century little is known of the progress of the art. Near the close of this era, western Europe became the theatre of alchemical pursuits. Albert the Great, of Germany, Roger Bacon, of England, and Raymond Lully, of Spain, three of the most distinguished men of that age, contributed to accomplish a revival in chemical science. But the principal object of their chemical studies was the *ignis fatuus* of former times; and alchemy continued to absorb the almost undivided attention of professed chemists, until the introduction of the experimental mode of philosophizing by Francis Bacon, two centuries since. Even more lately than this, a vague belief in the principles of alchemy prevailed to a considerable extent.

To trace the history of alchemy, and the influence which it acquired over the human mind, cannot fail to teach us an important lesson, which should be studied closely by every person who is fond of speculating and advancing new theories. Irrational and absurd as may appear in our view the search for the philosopher's magical stone, we must not forget that the great and gifted men of world, age after age, imbibed those delusive conceits, and dev years of incessant toil to those frivolous and fruitless occupati A slight examination is sufficient to prove the *literal* correctne the laconic definition given by an ancient writer: "An art wit art, the beginning of which is to lie, the middle to toil, and the to beg."*

Notwithstanding the visionary character of this art, it was fou on experiments—on facts, and possessed all the claims to defer as a legitimate theory, that can be advanced in support of sev speculations of the present day. The ores of lead and copper contain silver, and silver is found naturally alloyed with gold. subjecting these ores and metals to various processes, the oper was often struck with the produce of small portions of precious tals, which were not known to have existed in the original subst on which the experiment was performed. The impression was produced that all the metals consist of the same essence, or which, by being variously combined with other matter, assume different forms of the different metals. As gold was deemed purest and most valuable of all, it was regarded as the basis of and to convert the baser metals, as they were called, into g nothing more was thought necessary than to separate them f their impurities. The imaginary agent by which this object w be accomplished was the "philosopher's stone." To avarice ambition such reasoning was irresistible; and thousands swal ing the gilded bait, dedicated their lives to the chimerical purs

The original formation of metals in the earth was, accordin one doctrine, ascribed to the action of a vapor, or seed of me emanating from the earth's centre, and distilling towards its face. If the seminal vapor traverse a place where the eart "subtil, pure, and moist," it is made gold; but if it come to pure and cold places," it is made lead. The other metals, an kinds of stones, were supposed to owe their existence to sim processes. This notion is illustrated by the figure of a circula ble covered with powder of various colors, representing the e If water be poured upon the centre of the table, it will flow in rious directions towards the circumference, where it will be f tinged with the different colors of the powders through which i penetrated. In this state, the variously colored liquids repre the various metals, all having the same basis or essence, modifie the medium that it has traversed. The philosopher's stone wa lieved to embody the mysterious properties of the seminal em tion.

The sensible qualities of quicksilver, or mercury, were adapted to excite the idea that this metal has some peculiar affin with the precious metals. Accordingly, it became the subjec endless experiment, and mercury was tortured in a thousand w to fix it, and to extract its invaluable spirit. A. B.

* "Ars sine arte, cujus principium est mentire, medium laborare, finis m care."

(*To be continued.*)

* The term *alchemy*, or *alchymy*, is of Arabian origin, and consists simply of the article *al*, the, prefixed to the Arabic word *chymy*, chemistry.

Spots on the sun.—Leibnitz, wishing to render the sci of physics agreeable to the ear of queens, wrote to the quee Prusssia, that the spots of the sun were patches, which he put embellish his visage. Cyano affirmed, that he had discovered sun looking through the spots of the moon as windows, to see vagaries perpetrated by the inhabitants of the earth in his sence.—*Flints Lectures.*

For the Advocate of Science.

HISTORY OF TOBACCO.

ar plant tobacco, according to the sexual system of Linnæus, aced in the class Pentandria, order Monogynia. Natural order næ, *Linnæus*, Solaneæ, *Jussieu*; second class *Infundibuli-es* of *Tournefort*. The genus Nicotiana is distinguished by el shaped corolla, with its border somewhat plaited. Stamens ined; stigma emarginate; capsule two-celled, and either two ur-valved. The species tabacum has its leaves ovate lanceo- sessile, decurrent, flowers panicled, and acute.

obacco has a long fibrous root: a stalk five or six feet high, t, round, hairy, viscid, and branching at the top; leaves very e, sessile, ovate, or lanceolate, acuminate, pubescent and viscid, pale green color; bractes linear, and acute; flowers form- a panicle on the ends of the stem and branching; calyx swell- hairy, glutinous, half as long as the corolla, ending in five acute ents; corolla swelling toward the top, the border expanding, five acute lobes; the tube of a greenish white with a red bor- ; germ ovate; style long and slender, stigma cloven; capsule e, invested with the calyx, two celled, two valved, but open- rosswise at top; partition contrary to the valves; seeds very erous, small, somewhat reniform, and attached to a fleshy recep- e.

he fecundity of this plant is marvellous. Linnæus has calcu- l that a single plant of tobacco contains 40,320 grains; and that if each seed came to perfection the plants in four years ld more than suffice to cover the face of the earth.

t is a remarkable law in the animal economy, that the power se and habit is capable of reconciling the system to bear with unity what in its unaccustomed state proves highly deleterious even fatal.

t is a fact also that most substances in the Materia Medica lose r effect after a continued use for a length of time; so that if we ld realize their original operation, we must increase the dose in portion as the body becomes habituated and insensible to their ulus. "This is remarkably exemplified in the narcotics: many hese substances which at first are not only nauseous and disgust- in their sensible qualities but highly deleterious in their action n health; are so changed in their effect by custom, as to become hose who employ them not only agreeable but indispensable to fort, and are esteemed by them among the greatest luxuries of ."

obacco has been employed both as a luxury, a prophylactic, a medicine. It has now no prophylactic reputation except as a ervative for the teeth, and as some suppose, a protection against contagion of epidemics.

By many the smoking of tobacco is considered the most injurious le of employing it, as the active principles of the tobacco in this cess are volatilized and more extensively applied to the lungs, as ll as to the nose and mouth. Medicinally tobacco is often of use. . Chapman observes that he has known benefit derived from smok- a cigar, as well in croup as in asthma, and other spasmodic af- ions of the chest. The operation he says is very speedy; great axation is induced sometimes without vomiting or even nausea, ugh both more frequently take place.

It is stated by a writer of respectability that while at the Cape of od Hope, he had a number of Hottentots under his care, with ermittent fever. Being deficient in medicines, he resorted to the e of Scotch snuff, and found six grains as effectual in exciting vomiting as two grains of tart. antimony. Dr. Chapman remarks that he has seen it exceedingly serviceable in subduing the turbulence of some of the more furious shapes of mania; and when it cannot be given internally, as often happens under such circumstances, a poultice of it may be applied externally and will produce the desired effect.

Tobacco seems especially to be adapted to the evacuation of some poisons, and may be exhibited either internally or applied as a cataplasm to the epigastric region. It is recorded by the late Professor Barton that he has resorted to such an application of the moistened leaves with complete effect, to expel an inordinate quantity of laudanum, in a case where the active emetics in the largest doses would not operate, from the extreme torpor of the stomach.

Dr. James Currie mentions a case of epilepsy cured by the external use of tobacco. A cataplasm was applied to the stomach for several days, about half an hour before the paroxysm. A violent impression was produced each time upon the system, and thus the paroxysm prevented, and the diseased association effectually broken up. Two cases of obstinate and dangerous intermittents were cured in the same manner, by a decoction of half a drachm of tobacco in four ounces of water, thrown up as an enema, a short time before the recurrence of the paroxysm.

The tobacco enema was formerly recommended in cholic, nephritic complaints &c.: of late years it has been extensively employed in strangulated hernia. An injection, made by infusing half a drachm of tobacco in eight ounces of boiling water, for ten minutes, is found extremely useful in these cases. It is also employed in the reduction of dislocations, where it operates by releasing and thus overcoming the action of the muscular fibre.

As a diuretic, tobacco has been used internally in doses so small as not to offend the stomach, with very good effect.

Dr. Fowler experienced great benefit from its use as a diuretic in dropsy and dysury. In thirty-one dropsical cases in which he employed it, eighteen were cured, and ten relieved; and out of eighteen cases of dysury, ten were cured and seven relieved; the doctor thinks the most effectual mode of administering tobacco is in the form of pills one grain each.

Mr. Duncan, surgeon of Grenada, has published in the Edinburgh Journal an account of a very distressing case of lock jaw, which was received and finally cured, principally by enemas of tobacco smoke.

Dr. Cullen observes among other effects of excess in snuffing, that he has found all the symptoms of dyspepsia produced by it. The dependence of indigestion upon the use of snuff became very evident from the fact that upon an accidental interruption of the habit for some days these pains did not occur.

In considering the medical virtues and narcotic power of this plant it will be well to bear in mind that its action is in most cases immediately on the heart, and from doses improperly given as enemas, death has occured from the influence on that vital organ.

The repulsive properties of the plant are insufficient to screen it from injury. While in a growing state, a species of horned worm, known in many parts of America by the name of the tobacco worm, will frequently destroy whole fields of it, unless proper precaution be taken for its extermination. Its history seems to be almost unknown; not being discernible till the plants have attained about half their height, and then appearing nearly as large as a gnat: by degrees it enlarges till it attains a length of three or four inches, with a diameter of half or three quarters of an inch. Its shape is regular, without any diminution at either extremity. In general its color is

green, interspersed with several spots of a yellowish white; and the whole animal is covered with a short hair, scarcely discernible. These worms are most predominant during the end of July and beginning of August, at which time the plants must be particularly attended to, and every leaf carefully inspected. If a wound is discovered, the worm will be found near it, and it must be destroyed.

Whether the denunciations which have fallen from pulpits, thrones, and legislative bodies, have been the means of sustaining the popularity of the plant,—as persecution has the existence of the Jewish people,—others are left to determine. But while we smile at the public proclamations of ancient sovereigns, and the heavy penalties which a sister state was wont to inflict on those of her citizens who presumed to love tobacco more than the salutary provisions of her famed "blue laws," we may draw a contrast, and exhibit the improvements which a modern age has known, with the admirable strictures of our transatlantic tourists on this all important subject, together with the philosophic resolutions of an association of our own enlightened city. J. C. T.

For the Advocate of Science.

ACCOUNT OF THE BREAD FRUIT TREE.

(From Ellis's Polynesian Researches.)

The vegetable productions from which the inhabitants* derive a great part of their subsistance, are numerous, varied and valuable: among these, the first that demands notice is the bread tree, *artocarpus*, being in greater abundance and in more general use than any other. The tree is large and umbrageous; the bark is light-colored and rough; the trunk is sometimes two or three feet in diameter, and rises from twelve to twenty feet without a branch. The outline of the tree is remarkably beautiful, the leaves are broad, and indented somewhat like those of the fig-tree, frequently twelve or eighteen inches long, and rather thick, of a dark green color, with a surface glossy as that of the richest evergreen.

The fruit is generally circular or oval, and is, on an average, six inches in diameter; it is covered with a roughish rind, which is marked with small square or lozenge-shaped divisions, having each a small elevation in the centre, and is at first of a light pea-green color; subsequently it changes to brown, and when fully ripe assumes a rich yellow tinge. It is attached to the small branches of the tree by a short thick stalk, and hangs either singly or in clusters of two or three together. The pulp is soft; in the centre there is a hard kind of core extending from the stalk to the crown, around which a few imperfect seeds are formed.

There is nothing very pleasing in the blossom; but a stately tree, clothed with dark shining leaves, and loaded with many hundreds of large light green or yellowish-colored fruit, is one of the most splendid and beautiful objects to be met with among the rich and diversified scenery of a Tahitian landscape. Two or three of these trees are often seen growing around a rustic cottage, and embowering it with their interwoven and prolific branches. The tree is propagated by shoots from the root; it bears in about five years, and will probably continue bearing fifty or sixty.

The bread fruit is never eaten raw, except by pigs; the natives, however, have several methods of dressing it. When travelling on a journey, they often roast it in the flame or embers of a wood fire; and peeling off the rind, eat the fruit; this mode of dressing is called *tunu pa*, crust or shell roasting. Sometimes, when thus dressed, it is immersed in a stream of water, and, when completely saturated, forms a soft, sweet, spongy pulp, or sort of paste, of which the natives are exceedingly fond.

The general and best way of dressing the bread fruit is by baking it in an oven of heated stones. The rind is scraped off, each fruit is cut into three or four pieces, and the core carefully taken out; heated stones are then spread over the bottom of the cavity forming the oven, and covered with leaves, upon which the pieces of bread fruit are placed; a layer of green leaves is strewn over the fruit, and other heated stones are laid on the top: the whole is then covered with earth and leaves several inches in depth. In this the oven remains half an hour longer, when the earth and leaves removed, and the pieces of bread fruit taken out; the outside in general nicely browned, and the inner parts present a wh yellowish cellular pulpy substance, in appearance slightly re bling the crumb of a small wheaten loaf. Its color, size and s ture are, however, the only resemblance it has to bread. It ha little taste, and that is frequently rather sweet; it is somew rinaceous, but not so much so as several other vegetables, and bably less so than than the English potato, to which in flavor also inferior. It is slightly astringent, and as a vegetable it is but it is a very indifferent substitute for English bread.

To the natives of the South Sea Islands it is the principal ar of diet, and may indeed be called their staff of life. They are ceedingly fond of it, and it is evidently adapted to their con tions, and highly nutritive, as a very perceptible improvemen often manifest in the appearance of many of the people a few w after the bread-fruit season has commenced. For the chiefs usually dressed two or three times a day; but the peasantry seldom prepare more than one oven during the same period; frequently *tihana*, or bake it again on the second day.

During the bread fruit season, the inhabitants of a district s times join to prepare a quantity of *opio*. This is generally ba in a prodigious oven. A pit, twenty or thirty feet in circumfere is dug out; the bottom is filled with stones, logs of firewood are upon them, and the whole is covered with large stones. The w is then kindled, and the heat is often so intense as to reduce stones to a state of liquefaction. When thoroughly heated, stones are removed to the sides; many hundred ripe bread fruit then thrown in, just as they have been gathered from the trees, are piled up in the centre of the pit; a few leaves are spread u them, the remaining hot stones built up like an arch over the h and the whole is covered, a foot or eighteen inches thick, leaves and earth. In this state it remains a day or two; a hol then dug on one side, and the parties to whom it belongs take what they want till the whole is consumed. Bread fruit, bake this manner, will keep good several weeks after the oven is ope

Although the general or district ovens of opio were in their dency less injurious than the public stills often erected in the ferent districts, they were usually attended with debauchery excess, highly injurious to the health and debasing to the moral the people, who frequently relinquished their ordinary employm and devoted their nights and days to mere animal existence of lowest kind—rioting, feasting and sleeping, until the opio was sumed. Within the last ten years very few ovens of opio have b prepared; those have been comparatively small, and they are almost entirely discontinued.

Another mode of preserving the bread fruit is by submitting i a slight degree of fermentation, and reducing it to a soft substa which they call *mahi*. When the fruit is ripe, a large quantit gathered, the rind scraped off, the core taken out, and the w thrown in a heap. In this state it remains until it has under the process of fermentation, when it is beaten into a kind of pa A hole is now dug in the ground, the bottom and sides of which lined with green *ti* leaves; the mahi is put into the pit, covered o with *ti* leaves, and then with earth or stones. In this state it be preserved several months; and, although rather sour and i gestible, it is generally esteemed by the natives as a good article food during the scarce season. Previous to its being eaten, i rolled up in small portions, enclosed in bread fruit leaves, baked in the native ovens.

The tree on which the bread fruit grows, besides producing t and in some cases three crops in a year, of so excellent an article food, furnishes a valuable gum or resin, which exudes from the ba when punctured, in a thick, mucilaginous fluid, which is harde by exposure to the sun, and is serviceable in rendering water-ti the seams of their canoes. The bark of the young branches is u in making several varieties of native cloth. The trunk of the t also furnishes one of the most valuable kinds of timber which t natives possess, it being used in building their canoes and hous and in the manufacture of several articles of furniture. It is o rich yellow color, and assumes from the effects of the air, the pearance of mahogany; it is not tough, but durable when not posed to the weather.

* The inhabitants of Tahiti, one of the South Sea islands.

It is very probable that in no group of the Pacific islands is there a greater variety in the kinds of this valuable fruit, than in the South Sea Islands. The several varieties ripen at different seasons, and the same kinds also come to perfection at an earlier period in one part of Tahiti than in another; so that there are but few months in the year in which ripe fruit is not to be found in the several parts of this island. The missionaries are acquainted with nearly fifty varieties, for which the natives have distinct names—these, as collected by one of the first missionaries, I have by me; but it is unnecessary to insert them—the principal are, the *paeu*, ARTOCARPUS *incisa*, and the *uru maohe*, ARTOCARPUS *integrifolia*.

LIFE OF LINNÆUS.

(Translated from the Bib. Univ. for, and extracted from Silliman's Journal.)

Much has been written upon Linnæus; and the eminent rank which he held, and the prodigious influence which he exerted over natural history, render what has been written sufficiently intelligible. But of the biographical works which we possess in French upon this man of genius, some are either too devoid of details to give much account of his history, or written too soon after his death to enable their authors to appreciate his influence with impartiality. Men are, in truth, like edifices; in looking at them when close at hand, we can form a just estimate only of those which are made up of details and do not rise to a very great height; but with regard to temples and elevated obelisks, we can judge of them only at a distance. With respect to men who have been predominant in their age, and have impressed upon it a new direction, we can judge of them properly only after their works have borne their fruits, and prejudices have become extinct. Mr. Fee has therefore rendered a real service to the history of science, in collecting and arranging carefully all the most authentic statements which could be found, either in works published in Sweden or Germany, or in the manuscripts which he was able to procure, relative to the life of the Reformer of natural history.

His work is composed, 1st, of the translation of the life of Linnæus, written by himself, and published by his disciple Afzelius; 2d, of extracts from his correspondence with naturalists of his time; 3d, of a collection of anecdotes relating to Linnæus and his labors; 4th, of a bibliographical notice of his works.

Linnæus has on many occasions related the story of his own life, and the narrative which forms the first part of Mr. Fee's work is the most complete of these different auto-biographies. Even in the translation, the peculiar style of Linnæus may be recognized; it is a rapid recital, precise, full of fact, with occasional flashes from the fire of a poetic imagination.

Charles Linnæus was born at Råshult, in May,* 1707; his father was a country clergyman, of a mild character and an even temper. His mother had, he said, much mind, a sound judgment, and great vivacity of manners, furnishing an additional example in favor of those who maintain that all celebrated men have had intellectual mothers, and who thence infer the influence of the earliest years over the intellectual developement of children. Young Charles, from observing the flowers in his father's little garden, had received a taste for botany, and his mother, notwithstanding her intelligence, was so vexed at the direction which this gave to his studies, that she expressly forbade her other son Samuel from entering the garden. The success of Charles in the studies of the college, was far from answering to those early indications of talent. He never, in his life, had much facility in the study of languages, which is too often made exclusively the criterion of success in colleges, and he went to the University of Lund with the reputation of a very indifferent scholar. He there decided upon the study of medicine, and experienced great difficulties on account of his poverty. The naturalist Stobæus received him into his house, which gave him an opportunity to see a small museum, and this confirmed his taste for natural history. He went afterwards to Upsal, where Olaus Celsius having heard of his talents and his indigence, received him into his house, in order to aid him in his work upon biblical botany, and placed at his disposal a rich library. He derived some assistance also from giving lessons to the students, and he even aspired to the place of Rosen, the adjunct professor. He took Tournefort as his guide, in the study of plants, (whom he knew principally from the abstract published by Johrenins, under the title of *Hodegus botanicus*,) and subsequently the treatise of Vaillant upon the sexes of plants opened his eyes to a new light. Rudbeck encouraged him to pursue it, and it was at this epoch, at the age of twenty-two years, that he began to write the *Bibliotheca botanica*, the *Classes plantarum*, and even the *Genera plantarum*.

Encouraged by the advice of Rudbeck, he then undertook a journey to Lapland, a painful journey, on account of the climate and the rough nature of that country, as well as from the smallness of his means which obliged him to travel alone, and destitute of many of the necessaries of life. He remitted the account of this tour to the Royal Society of Sciences at Upsal, obtaining with difficulty a very slight assistance from that body; he found some resources in giving private instructions in mineralogy and botany, and when, in 1734, he set out to visit Dalecarlia, he was accompanied by several of his pupils. One of these, Browall, afterwards Bishop of Abo, advised him to look out for a wife of sufficient property to furnish him with means; he accordingly solicited in marriage the daughter of Doctor Moræus, who was deemed wealthy, and to his great surprise, as he said, his suit was accepted. It was settled, that the marriage should take place within three years, and that the interval should be spent in travelling.

He betook himself to Holland, where he received a doctor's degree, and became intimate with the most celebrated naturalists of the time, Gronovius, Van Royen, Burman and Boerhaave; he astonished them by his knowledge and his readiness in naming the plants which they presented to him. Cliffort, who had the most beautiful garden in Holland, engaged him to remain with him in order to aid him in its direction, and it was in this magnificent establishment that he enlarged his ideas upon vegetation. He there published many important works, (*Hortus Cliffortianus &c.*) Aided by his protector's generosity, he went into Germany, where he became acquainted with Dillenius; and upon his return to Holland, at the close of 1736, his reputation was already so great that the Academy of Naturalists, in receiving him into his bosom, gave him the title of Dioscorides the second. His method was already adopted by the Dutch botanists, and publicly taught at Leyden. He then made a tour to Paris, where he became well acquainted with Antoine and Bernard de Jussieu, and where, it appears, some efforts were made to retain him; but he preferred to return to Sweden, and the extreme difficulty with which he spoke foreign languages appeared to have had some influence in this resolution.

Upon his arrival, he was treated as a stranger, and he who was considered by one part of Europe as the prince of botanists, was unable at first to find either a place in the university, or patronage as a physician. He obtained, however, almost by chance, a small place at the School of Mines, and was afterwards appointed physician to the Admiralty; his practice increased so as to yield him nine thousand crowns a year. He married, and was appointed professor in conjunction with Valerius, and henceforth was placed in position worthy of his talents; he devoted himself with renewed zeal to natural history. His *Systema Naturæ*, the editions of which have been so much multiplied, fixed upon him the eyes of Europe. Academies disputed for the honor of his name; his pupils travelled over the world, and transmitted its productions to him. Favors from his sovereign succeeded; he was raised to the rank of noble, on account, it is said, of having discovered the generation of pearls, *Mya margaritifera*;* pensions were granted him, as well as domains to him and his posterity; and he who in his youth had been obliged to mend his own shoes, found himself, from the lustre of his labors, placed in old age in a state of great ease and social elevation.

The latter years of his life were passed in supplying new editions of his works, in publishing, under the form of academic theses, several piquant dissertations, which have been collected together under the title of *Amœnitates*, in giving private lessons (often during eight hours a day) to select pupils, in looking after the interests of

* Some say the 3d, others the 22d of this month.

* It was there that he received the name of *Von Linne* instead of that of *Linnæus*, which he had always borne, not for the purpose of Latinizing his name, as has been believed, but because it was the true name of his family. The name of Linnée, which has often been given him in French, is erroneous, and belongs only to the plant which is dedicated to him.

the Academy and the public collections, and in arranging his own herbal. In 1773 he was attacked with a severe quinsy; in 1774, while giving a lesson in the botanic garden, he was struck with paralysis, to which succeeded a tertain ague. He ceased in 1776 to write his own life; his intellectual faculties declined,—a state the more painful from his being sensible of it himself. His writing became illegible, and he sometimes mixed Greek and Latin letters in the same word. Finally, he forgot even his own name. In this condition, the only thing which appeared to reanimate him was the sight of his united collections at his country house at Hammarby. He expired on the 10th of January, 1778, aged seventy years and seven months.

(*To be continued.*)

Eruption of Mount Vesuvius.—The *Notizie del Giorno* of Rome gives the following account of a new phenomenon presented by Mount Vesuvius. "On the 12th of August, in the afternoon, crevices of the width of several feet were remarked round the whole circumference of the old crater. On the following night a thick column of smoke rose to about a mile into the air, and went in the direction of Castlemars. At three in the morning on the 13th, three torrents of lava, issuing from the opening formed in April last, rapidly descended in the direction of Torre del Greco, dividing in different streams. At five o'clock two other streams, proceeding from the same crater rushed down towards Crocella del Cantaroni. It was remarked that two days previously, the water in the wells at Resina had began to decrease considerably. At half-past seven, a loud noise was heard, repeatedly, in the interior of the mountain, and the rapidity of the lava increased. At one o'clock in the afternoon, three shocks in Mount Vesuvius caused the houses in the neighboring communes to vibrate, whilst a whitecolumn, tinctured with red by a flame which was seen moving inside, rose to a considerable height opposite the rays of the sun. This column had entirely disappeared at six in the evening."

THE ADVOCATE OF SCIENCE.

Tenth Month 24, 1833.

We owe to our subscribers an apology for the late appearance of this and the two preceding numbers of our paper. The press of other business has rendered the delay unavoidable on our part.

Our correspondent L. H. P. need not fear burthening us with his communications. On the contrary, we hope he will continue to contribute to our columns.

The article we commence in our present number on the life of Linnæus, is a general notice of a book bearing that title, and forming the first part of the Memoirs of the Royal Society of Sciences, Agriculture and Arts, of Lille, for 1832. The conspicuous character of this great man, and a remembrance of his invaluable services in the cause of science, will render even a partial notice of his life and labors interesting to all our readers.

THE STEAMER "NEW ENGLAND."

An article on the subject of the late melancholy accident which befel the New England steamer, has just been published in the papers. It gives a minute history of the circumstances relating to the catastrophe, with a view to ascertain the cause of the explosion. From this statement it seems probable that the safety valve of the boat was prevented from performing its office by the weight of some timber which had been accidentally displaced so as to rest on the lever of the valve. The boiler was of copper, one quarter of an inch thick, and had been tested with a pressure of steam equal to 24 pounds on the square inch. The safety valve was intended to open with 18 pounds of steam; but this not acting as it ought, the steam appears to have accumulated to nearly 30 pounds on the inch, when both boilers burst with a tremendous explosion.

The writer of the article in question considers it unsafe to suffer the steam to enter or pass from the boilers suddenly, with its full force. A violent strain is supposed to be given to the boilers by so doing, the force of which is greater than the absolute pressure of the steam. There are also some valuable hints relative to the propriety of government instituting some plan to prevent the numerous accidents which occur in the United States by steamboats. The English have adopted such a course with the most salutary effect. Every boiler is tried by an officer of the government once in three months, and the steam is not allowed to be raised above one third of the pressure which the boiler is found capable of standing. The New England, for instance, instead of using 18 inches of steam, would have been allowed only 8, and the safety valve would have been regulated accordingly, to discharge all excess of steam. The safety valve (in England) is secured in an apartment to which none but the officers of government have access, and of course it is never in the power of any persons on board the boat to employ more steam than the degree sanctioned by the regulation.

Professor Hare, of this city, has communicated to the National Gazette a plan for preventing the loss of lives by steamboat explosions. It consists in placing the boilers entirely beyond the range of the sides of the boat, and erecting a strong bulwark between them and the boat, while the other walls of the boiler apartments are as light as possible. In case of explosion, the steam readily finds a vent by blowing off the roof and outer frame work, while the body of the boat is untouched. A plan somewhat similar to this has been used for years at the powder manufactory of the Messrs. Dupont, on the Brandywine, to prevent injury from the inflammation of the powder. A strong stone wall is fixed on that side of the mill next the dwelling houses, while the side next the creek, and the roof, are light frame structures, which easily yield to the force of the explosion. When an explosion occurs in a mill thus constructed, the frame work is blown off like so much paper, the roof being sometimes thrown nearly over the creek, while the stone wall remains standing. Even if the wall should be prostrated, there is still no damage done to the buildings in that quarter; for it serves to direct the force of the explosion in an opposite course.

We think the press should take up this subject, and not suffer it to rest, till a law is enacted securing to our citizens greater safety than they now enjoy in travelling by steam. It is said, not a single explosion has happened in England since the adoption of the provision before mentioned.

DR. GODMAN'S RAMBLES OF A NATURALIST.

(*Continued from page* 118.)

The following sketch of the crab (LUPA *hastata*) will afford our readers a very pleasant repast. The habits of these animals are curious. One species, GECARCINUS *ruricola*, the violet crab, which inhabits the Bahama islands, and lands about the tropics, is worthy of attention:—we will notice it more minutely at the conclusion of this article.

After the sun-fish, as regular annual visitants of the small rivers and creeks containing salt or brackish water, came the crabs in vast abundance, though for a very different purpose. These singularly constructed and interesting beings furnished me with another excellent subject for observation; and, during the period of their visitation, my skiff was in daily requisition. Floating along with an almost imperceptible motion, a person looking from the shore might have supposed her entirely adrift; for as I was stretched at full length across the seats, in order to bring my sight as close to the water as possible without inconvenience, no one would have observe I my presence from a little distance The crabs belong to a very extensive tribe of beings, which carry their *skeletons* on the *outside* of their bodies, instead of within; and of necessity the fleshy, muscular, or moving power of the body, is placed in a situation the reverse of what occurs in animals of a higher order, which have internal skeletons or solid frames to their systems This peculiarity of the crustaceous animals and various other beings, is attended with one apparent inconvenience; when they have grown large enough to fill the shell or skeleton completely, they cannot grow farther, because the skeleton being external, is incapable of enlargement. To obviate this difficulty, the Author of nature has endowed them with the power of casting off the entire shell, increasing in size, and forming another equally hard and perfect, for several seasons successively, until the greatest or maximum size is attained, when the change of sloughing ceases to be necessary, though it is not always discontinued on that account. To undergo this change with greater ease and security, the crabs seek retired and peaceful waters, such as the beautiful creek I have been speaking of, whose clear, sandy shores are rarely disturbed by waves causing more than a pleasing murmur, and where the number of enemies must be far less in proportion than in the boisterous waters of the Chesapeake, their great place of concourse. From the first day of their arrival in the latter part of June, until the time of their departure, which in this creek occurred towards the first of August, it was astonishing to witness the vast multitudes which flocked towards the head of the stream.

It is not until they have been for some time in the creek, that the moult or sloughing generally commences. They may be then observed gradually coming closer in shore, to where the sand is fine, fairly exposed to the sun, and a short distance far-

ther out than the lowest water mark, as they must always have at least a depth of three or four inches water upon them.

The individual having selected his place, becomes perfectly quiescent, and no change is observed during some hours but a sort of swelling along the edges of the great upper shell at its back part. After a time this posterior edge of the shell becomes fairly disengaged like the lid of a chest, and now begins the more difficult work of withdrawing the great claws from their cases, which every one recollects to be vastly larger at their extremeties and between the joints than the joints themselves. A still greater apparent difficulty presents in the shedding of the sort of tendon which is placed within the muscles. Nevertheless, the Author of nature has adapted them to the accomplishment of all this. The disproportionate sized claws undergo a peculiar softening, which enables the crab, by a very steadily continued, scarcely perceptible effort, to pull them out of their shells, and the business is completed by the separation of the complex parts about the mouth and eyes. The crab now slips out from the slough, settling near it on the sand. It is now covered by a soft, perfectly flexible skin; and though possessing precisely the same form as before, seems incapable of the slightest exertion. Notwithstanding that such is its condition, while you are gazing on this helpless creature, it is sinking in the fine loose sand, and in a short time is covered up sufficiently to escape the observation of careless or inexperienced observers. Neither can one say how this is effected, although it occurs under their immediate observation; the motions employed to produce the displacement of the sand are too slight to be appreciated, though it is most probably owing to a gradual lateral motion of the body by which the sand is displaced in the centre beneath, and thus gradually forced up at the sides until it falls over and covers the crab. Examine him within twelve hours, and you will find the skin becoming about as hard as fine writing paper, producing a similar cracking if compressed; twelve hours later the shell is sufficiently stiffened to require some slight force to bend it, and the crab is said to be in *buckram*, as in the first stage it was in *paper*. It is still helpless, and offers no resistance; but at the end of thirty-six hours, it shows that its natural instincts are in action, and by the time forty-eig t hours have elapsed, the crab is restored to the exercise of all his functions. I have stated the above as the periods in which the stages of the moult are accomplished, but I have often observed that the rapidity of this process is very much dependent upon the temperature, and especially upon sunshine. A cold, cloudy, raw, and disagreeable spell happening at this period though by no means common, will retard the operation considerably protracting the period of helplessness. This is the harvest season of the white fisherman and of the poor slave. The laziestof the former are now in full activity, wading along the shore from morning till night, dragging a small boat after them, and holding in the other hand a forked stick with which they raise the crabs from the sand. The period during which the crabs remain in the paper state is so short, that great activity is required to gather a sufficient number to take to market, but the price at which they are sold is sufficient to awaken all the cupidity of the crabbers. Two dollars a dozen is by no means an uncommon price for them when the season first comes on; hey subsequently come down to a dollar, and even to fifty cents, at any of which rates the trouble of collecting them is well paid. The slaves search for them at night, and then are obliged to kindle a fire of pine knots on the bow of the boat, which strongly illuminates the surrounding water, aud enables them to discover the crabs. Soft crabs are with great propriety, regarded as an exquisite treat by those who are fond of such eating; and though many persons are unable to use crabs or lobsters in any form, there are few who taste of the soft crabs without being willing to recur to them. As an article of luxury they are scarcely known north of the Chesapeake, though there is nothing to prevent them from being used to considerable extent in Philadelphia, especially since the opening of the Chesapeake and Delaware canal. The summer of 1829 I had the finest soft crabs from Baltimore. They arrived at the market in the afternoon, were fried according to rule, and placed in a tin butter kettle, then covered for an inch or two with melted lard, and put on board the steam boat which left Baltimore at five o'clock the same afternoon. The next morning before ten o'clock they were in Philadelphia, and at one they were served up at dinner in Germantown. The only difficulty in the way is that of having persons to attend to their procuring and transmission, as when cooked directly after they arrive at market, and forwarded with as little delay above mentioned, there is no danger of their being the least injured.

At other seasons when the crabs did not come close to the shore, I derived much amusement by taking them in the deep water. This is always easily effected by the aid of proper bait; a leg of chicken, piece of any raw meat, or a salted or spoiled herring, tied to a twine string of sufficient length, and a hand net of convenient size, is all that is necessary. You throw out your line and bait, or you fix as many lines to your boat as you please, and in a short time you see by the straightening of the line, that the bait has been seized by a crab, who is trying to make off with it. You then place your net where it can conveniently be picked up, and commence steadily but gently to draw up your line, until you have brought the crab sufficiently near the surface to distinguish him; if you draw him nearer he will see you and immediately let go, otherwise his greediness and voracity will make him cling to his prey to the last. Holding the line in the left hand, you now dip your net edge foremost into the water at some distance from the line, carry it down perpendicularly until it is five or six inches lower than the crab, and then with a sudden turn out bring it directly before him, and lift up at the same time. Your prize is generally secured, if your net be at all properly placed; for as soon as he is alarmed he pushes directly downwards, and is received in the bag of the net. It is better to have a little water in the bottom of the boat to throw them into, as they are easier emptied out of the net, always letting go when held over the water. This a good crabber never forgets, and should he unluckily be seized by a large crab, he holds him over the water and is freed at once, though he loses his game. When not held over the water, they bite sometimes with dreadful obstinacy, and I have seen it necessary to crush the foreceps or claws before one could be induced to let go the fingers of a boy. A poor black fellow also placed himself in an awkward situation; the crab seized him by a finger of his right hand, but he was unwilling to lose his captive by holding him over the water, instead of which he attempted to secure the other claw with his left hand, while he tried to crush the biting claw between his teeth. In doing this, he somehow relaxed his left hand, and with the other claw, the crab seized poor Jem by the under lip, which was by no means a thin one, and forced him to roar with pain. With some difficulty he was freed from his tormentor, but it was several days before he ceased to excite laughter, as the severe bite was followed by a swelling of the lip, which imparted a most ludicrous expression to a naturally comical countenance.

For the Advocate of Science.

Suppose a semi-circular hoop, of uniform tenacity and thickness, standing perpendicularly upon a horizontal plane, and from the vertex of this hoop suppose a weight to be hung, sufficient to overcome its tenacity and break it—required at what point it will break? B.

For the Advocate of Science.

I was highly gratified to see that my simple questions drew forth a solution from "*Rusticus*" and was also pleased with his ideas on the subject. The first question he answered to my satisfaction; but in the latter he erred, not in the train and substance of his arguments, but by not confining himself to the proposition. His philosophy in comparing an iron hoop to an iron chain does not solve my question. For instance, the universal practice of making an iron chain is to have the links of a uniform length and shape (oblong;) perhaps to increase the natural strength of the iron? But take a hoop of iron in its mechanical shape, and by power extend it to an oblong, then comes its strength. But in this operation the strength of the ron is protracted, and until the curve comes in parallell contact with its opposite powers, the strength of the metal is not tested. Hence the arch formed on each side of the opposite powers does not demonstrate the effect one link of a chain has upon the other; nor each ones proportionable strength upon the weight attached. Therefore my "question" is not, whether a small link, or hoop is less liable to break, than a larger one; but whether in a chain of three or more links; the one in the middle is more liable to break than those on the ends.

QUÆSITOR.

For the Advocate of Science.

THE MOON HAVING TO TRAVERSE A RESISTING MEDIUM.

In my communication respecting "shooting stars," I remarked "that there is satisfactory reasons for believing the moon to be nearer the earth now, than it was some two thousand years ago—the necessary result of atmospheric resistance." Your observations on the same subject, in the same paper, require the reasons for such a belief.

When I made the remark, it was with the impression that the fact there stated was a commonly received opinion, or I should have been more explicit; though I did not consider it at all material to the point in discussion, to wit, that *meteorites* revolve in a resisting medium. Allowing the moon to be exempt from such resistance, there would still be reason for supposing that a body no more than five hundred or a thousand miles from the earth, might be subject to it.

But to the point. It is affirmed by Ferguson, that a lunar month now, is a little shorter than it was in former ages. This is known from the circumstance that ancient eclipses, as computed from the present astronomical tables, do not agree exactly with the same eclipses as observed and recorded at the time. I have not made the investigation myself, but have no doubt of the fact. Any one who has leisure and inclination, and who is supplied with a catalogue of ancient eclipses, can satisfy himself. If there is no mistake on this point, the inference I think must be, that the moon is gradually approaching the earth; for I cannot conceive of any other cause capable of accelerating its periodical revolutions.

The consequence which you deduce from this doctrine, that the moon and earth must at some future day be brought into contact with each other, is undoubtedly legitimate. If this state of things does exist, such an event must be inevitable, unless, as Ferguson says, "that Being who gave the moon a sufficient projectile force in the beginning, adds a little more to it in due time."

The editor says this doctrine involves the whole solar, and perhaps celestial system. I see not but it may. But the atmosphere is not the only source of resistance and consequent derangement, if we are to adopt the popular notion about light and heat. If they are material substances, as is extensively believed at the present day, they must certainly oppose a resistance to the motions of all the bodies in the solar system at least, and probably throughout the universe. However, I do not wish to avail myself of this argument, for I frankly confess that I am not a believer in *materialism* as respects these matters.

As to the demonstrations of Lagrange and others about the self-adjusting and indestructible nature of our system, if I mistake not they had reference exclusively to the laws of gravity and motion. No one will contend, I apprehend, that these laws are such that a heavenly body would not be liable to be disturbed by atmospheric resistance. That the moon, or any other body in the system, does *not* have to encounter such resistance, I am sure would be a difficult matter for any one to prove. L. H. P.

MISCELLANIES.

1. *Iron roofs for houses.*—Sheet iron roofs are now almost universally used on all new houses in Petersburg, Moscow, and other cities of Russia. Such roofs are of course safe from all danger by fire. The sheets are about four inches long and two wide. They are painted on both sides before being put on, and another coat of paint is afterwards applied. The cost of this kind of roofing is between three and four cents a foot.

2. *Boring for water in Egypt.*—The necessary implements for boring were recently taken from England to Egypt, and successfully employed in the sandy deserts. Near Cairo a stratum of sand stone was discovered about 30 feet beneath the surface, under which water was found. It is said the experiment has hitherto succeeded in every trial. In the district of Suez, a tank has been formed holding 2000 cubic feet of water, and others are being made. It is supposed this discovery will have an important hearing on the civilization of Egypt and Arabia.

3. *Gigantic reeds of Brazil.*—Some of the reeds of Brazil grow from thirty to forty feet high, with a diameter of six inches. They form impenetrable thickets, and are grateful to hunters; for on cutting off such a reed below the joint, the stem of the younger shoots is found full of a cool pleasant liquid, which immediately quenches the most burning thirst.—*Lindsay's Botany.*

4. *Birds instrumental in diffusing vegetation.*—Birds are accessary in several ways to the dissemination of plants. The misseltoe has a viscous berry which is conveyed from tree to tree by sticking to the plumage or feet of birds. Some birds also eat the berries, and thus transport the seed. Dr. Walker, an English botanist, states that he has seen plantations of holly, yew, white beam, mountain ash, hawthorn and juniper, on inaccessible precipices and impending cliffs, formed by the birds, which excelled in beauty the plantations of man. The same author states that the seeds of the magnolia, from America, would not grow in England until they had been eaten by turkeys; after which they vegetated well.

5. *Practical advantage of science.*—The following illustration of the utility of science in the common occurrences of life, is from the Genesee Farmer:—"A pen knife, by accident, dropped into well twenty feet deep. A sunbeam from a mirror was directed to the bottom, which rendered the knife visible, and a magnet, fastened to a pole, brought it up."

6. *Force of Instinct.*—Southy, in his History of Brazil, thus describes the perilous situation of Cabeza de Vaca, who, sailing towards Brazil, is preserved from shipwreck by a grillo, or ground cricket: "When they had crossed the line, the state of the water was inquired into; and it was found that of a hundred casks there remained but three to supply four hundred men and thirty horses: upon this the Adelantado gave orders to make the nearest land. Three days they stood towards it. A soldier, who set out in ill health, had brought a grillo, or ground cricket, with him from Cadiz, thinking to be amused by the insect's voice; but it had been silent the whole way, to his no little disappointment. Now on the fourth morning the grillo began to ring its shrill rattle, scenting, as was immediately supposed, the land. Such was the miserable watch which had been kept, that upon looking out they perceived high rocks within bow-shot; against which, had it not been for the insect, they must inevitably have been lost. They had just time to drop anchor. From hence they coasted along, the grillo singing every night as though it had been on shore, till they reached the island of St. Catalina."

7. *Singular fact relative to poisonous animals and plants.*—It is a remarkable fact, that in cold climates there are neither poisonous plants, nor venomous animals. Noxious plants even loose their mortal qualities by being transplanted from the south to the north. The illustrious Haller remarks that the aconite, with the juice of which the Gauls poisoned their arrows, is less poisonous, in proportion as it grows further north; and that it is even eaten in Sweden as a salid to create appetite.—*Flints Lectures.*

8. *Canary Bird.*—The Abbe Pluche gives a touching picture of a Canary bird. They had given it hay to make itself a nest. For want of cotton or silk, to preserve the temperature necessary to the eggs which the mother was about to lay, she had recourse to a surprising expedient. She put herself to the task of stripping the breast of her male of all his plumage; and he seemed to consent to the operation, by making no resistance. With this down, she effectually lined all the interior of her nest.—*Ib.*

9. *Native Alum.*—A friend has shown us specimens of native alum collected by himself last week, on the banks of the Cataraugus Creek, in this county. It oozes from the soil with water and crystalilzes upon the surface of the ground.—*Buffalo Jour.*

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